



# MicroBooNE PMT System

## October 22, 2010

Arati Prakash

## WBS 1.8

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- ▶ PMTs (Teppe)
- ▶ Cables (Paul/Teppe)
- ▶ WLS Plates (Christina)
- ▶ Support Rack (Tess/Bill)
- ▶ Project

# WBS 1.8

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- ▶ PMTs (Teppe)
  - ▶ Base Configuration
  - ▶ Test Stand Construction

Cables

WLS Plates

Support Rack

Project

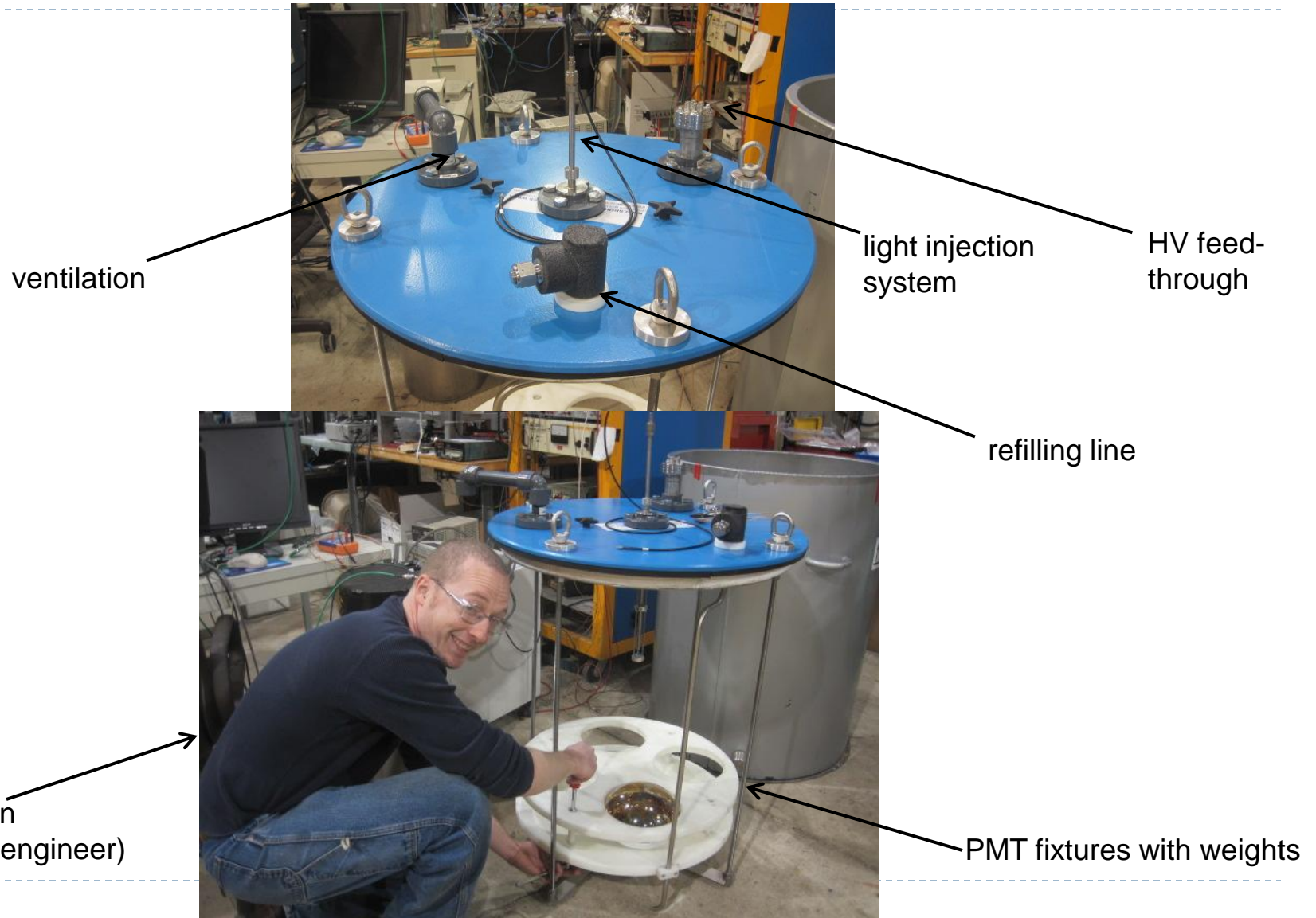
# Base Configuration

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- ▶ Follow up: last resistor changed from  $91\ \Omega$  to  $10k$ , so not back terminated & also protects bases.
- ▶ Using pin receptacle for HV and GND, so that we can keep recycling the same cable for testing.

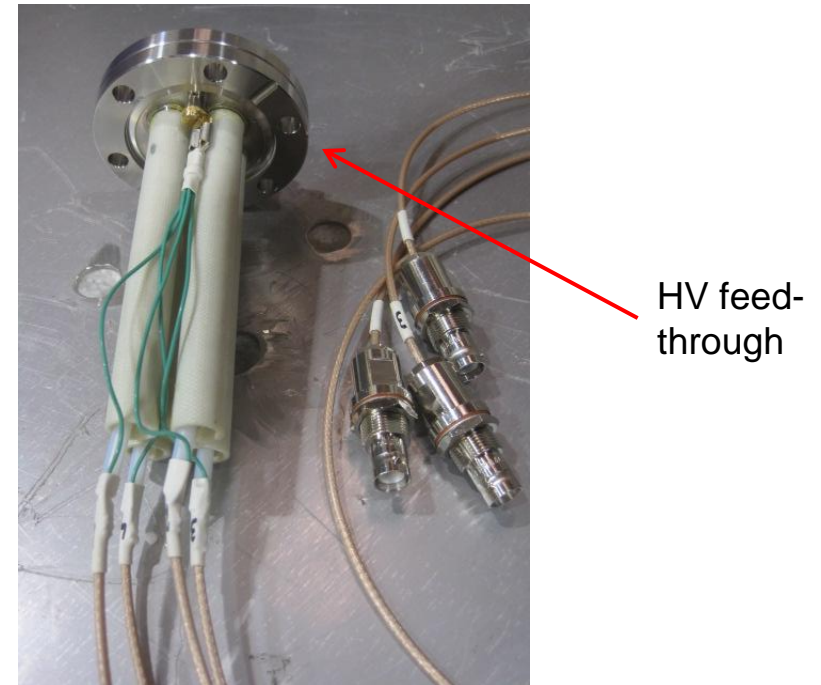
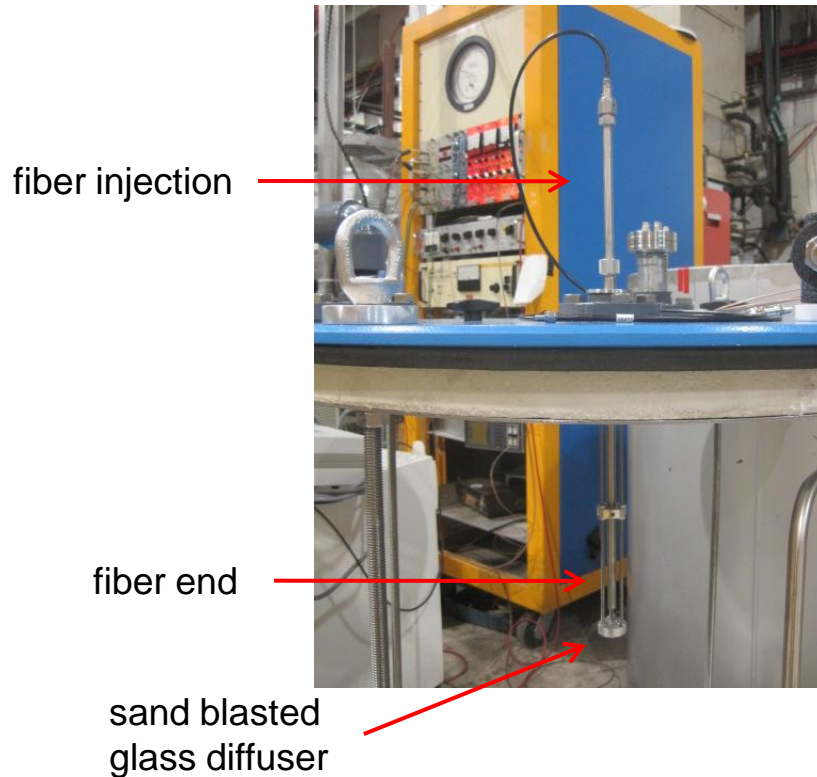


# Test stand: Ready for use in dewar



# Some Test Stand Components

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HV feed-through has 4 pig tails. The connectors are tested with 8kV with gas Argon.

# Plan

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- ▶ Complete calibration of system
- ▶ Check all bases
- ▶ Solder bases to PMTs
- ▶ Test PMTs in air
- ▶ Fill dewar with liquid N<sub>2</sub>

# WBS 1.8

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## PMTs

- ▶ Cables (Paul N, Teppei)
  - ▶ Feed-thru configuration

## WLS Plates

## Support Rack

## Project



# Feed-thru Configuration

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- ▶ Anticipate needing a 24 inch flange to accommodate connector feed-thrus
- ▶ Details to be ironed out:
  - ▶ Patch panel can be GND
  - ▶ Lengths of cables

# WBS 1.8

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PMTs

Cables

- ▶ WLS Plates (Christina Ignarra)

- ▶ Moisture study progress

Support Rack

Project

# Moisture study progress

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- ▶ Dry box delivery (~weeks) will allow moisture study
- ▶ Interesting qualitative observation: markedly less degradation to plates coated in dry climate
- ▶ More detailed study when dry box arrives

# WBS 1.8

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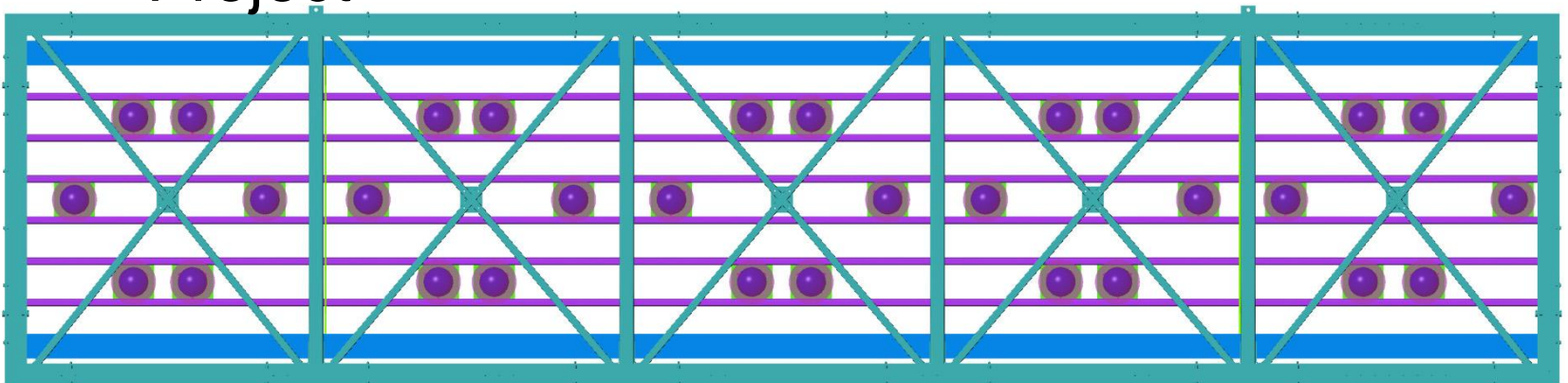
PMTs

Cables

WLS Plates

- ▶ Support Rack
  - ▶ Design & Installation Scheme
  - ▶ Costing

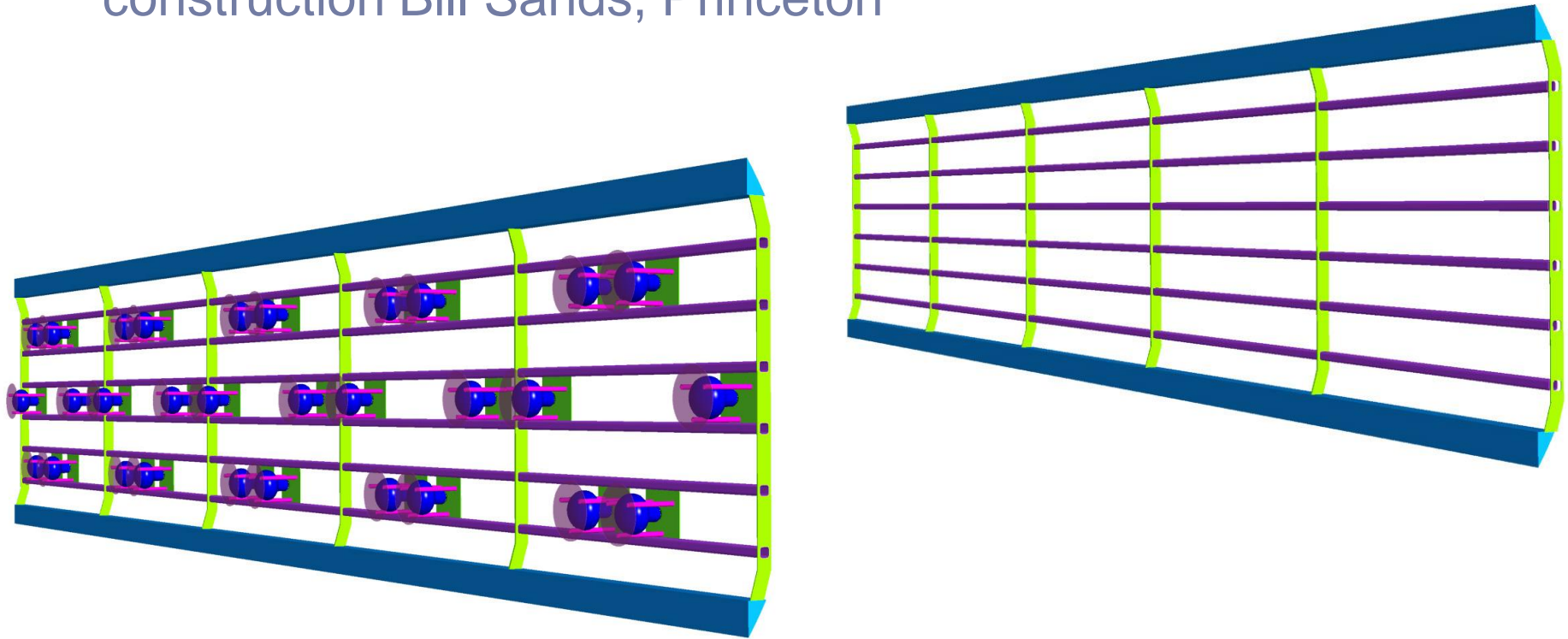
Project



# Design & Installation Scheme

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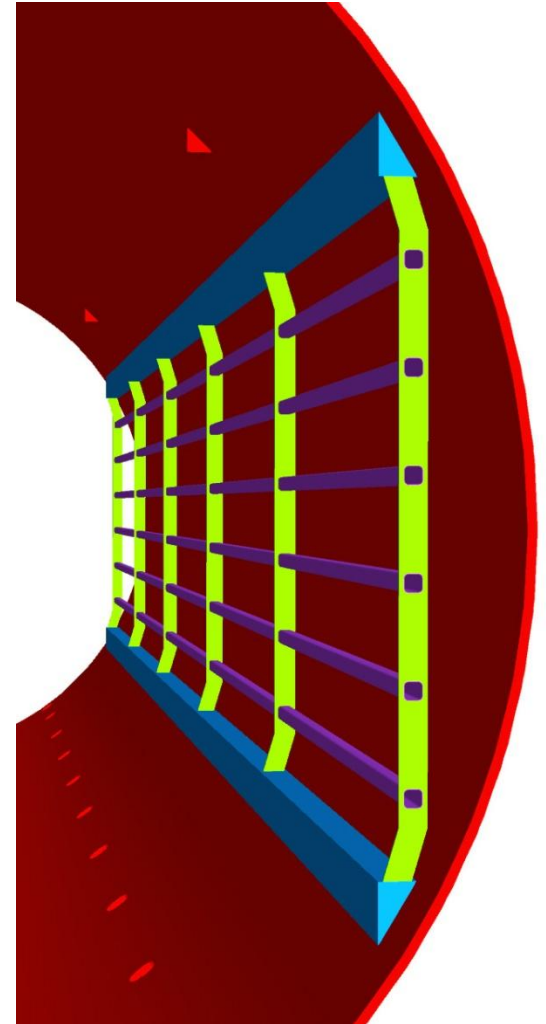
- ▶ Straight rack with 30 PMTs
- ▶ 5 Segments for easy Installation scheme
- ▶ Design allows for flexibility for PMT configuration after construction Bill Sands, Princeton



# Costing

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- ▶ Bill Sands quotes 38k (20% contingency)
  - ▶ Design, M&S, Fabrication
- ▶ Cross-checking with estimates from Yale, FNAL machine shops
- ▶ Once decided, can proceed with MOU



# WBS 1.8

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PMTs

Cables

WLS Plates

Support Rack

- ▶ Project
  - ▶ TDR
  - ▶ Interfaces & BOE's
  - ▶ Cost & Schedule

# TDR

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- ▶ 1.8.2-3
  - ▶ Shortened TDR chapter – on its way (<2 weeks)
  - ▶ Implemented recommendations from internal review report
- ▶ 1.8.5 Support Rack Internal Review
  - ▶ Would like this to occur Mid-Jan
  - ▶ Need to finalize reviewers
- ▶ Interfaces
  - ▶ Installation complete
  - ▶ Cryostat, DAQ coming soon
- ▶ BoE's
  - ▶ DocDB 971 has most up-to-date info



# Cost & Schedule

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- ▶ 21% of MIT part of Yale MRI left for remaining PMT testing expenses
  - ▶ Overruns will be covered by MIT
- ▶ Need to confirm funding for support rack
- ▶ Schedule is up-to-date (except support rack)